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10/736,498	12/17/2003	Manabu Yamazoe	00862.023369.	6251

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EXAMINER
ABDI, AMARA

ART UNIT	PAPER NUMBER
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892) ✔

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *08/16/2004*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claim 3,4-6, and 9 are objected to because of the following informalities:

(1) Claim 3, line 24, "**an** address" should be changed to "**the** address";

(2) Claim 4, line 3, page 24, "**an** output" should be changed to "**the** output"; and

on line 13, "**an** address" should be changed to "**the** address";

(3) Claim 9, line 26, "**an** address" should be changed to "**the** address".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-4, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Shu (US 5,517,335) in view of Kaye et al. (US 5,089,882).

(1) Regarding claims 1 and 7:

Shu disclose a color conversion method and an apparatus (column 1, line 44) of

inputting at least two color difference values and obtaining a corresponding saturation

value (column 1, line 44-46), comprising steps of:

creating a main lookup table which stores saturation value for the color difference

values (column 6, line 32-37; and line 37-41); and (column 7, line 55-57),

determining the address of the main lookup table in correspondence with two color difference values on the basis a difference between the two color difference values (column 7, line 52-56); and

obtaining a saturation value corresponding to the two color difference values from the address determined in said determining step (column 6, line 53-55)

However, Shu does not disclose the sub-lookup table for obtaining an address as recited in claims 1 and 7.

Kaye et al. teaches a processor for color video signals, where using a lookup table to obtain an address (column 5, line 55-59).

One of ordinary skill in the art would have clearly recognized the lookup table for obtaining an address for accessing the main lookup table (column 5, line 51-62). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Kaye et al., where using a lookup table for obtaining an address, in the system of Shu, where using a lookup table to store saturation values, by considering the lookup table of Kaye et al. as the sub lookup table for obtaining an address for accessing the main lookup table of Shu, which is considered as the main lookup table, because in such feature the signals (digital luminance, R-Y and B-Y) are limited so as to keep the resulting encodes NTSC or PAL composite signals within the predefined limits. This should be done in such a way that the composite signal is maintained within the pre-defined limits while still insuring that any processing of the color video signals is carried through with a minimum of change to the luminance, hue of saturation of the resulting composite signal (column 1, line 54-62).

(2) Regarding claims 2 and 8:

Shu further disclose the method and an apparatus (column 1, line 44), where the main lookup table has a smaller number of entries than the number of all possible combinations of the two color difference values by utilizing symmetry of the saturation value for the color difference values (column 7, line 45-51), (the examiner interpreted that by using a curve which is symmetric of the saturation value approach zero in either extreme, therefore the lookup table has a smaller number of entries than the number of all possible combinations of the two color difference values).

(3) Regarding claims 3 and 9:

Shu disclose all the subject matter as described in claim 1 above.

However, Shu does not disclose the method, where the sub-lookup table stores an address of an entry in which the two color difference values are the same as recited in claims 3 and 9.

Kaye et al. teaches a processor for color video signals, where the sub-lookup table stores an address of an entry (column 10, line 34-36) in which the two color difference values are the same (column 55-59)

One of ordinary skill in the art would have clearly recognized the storing of an address of an entry (column 10, line 35-36), where the saturation lookup table content's are addressed by unique pairs of values (column 5, line 60-62). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Kaye et al., where the two color difference values are the same, in the system of Shu, because in such feature the signals (digital luminance, R-Y and B-Y) are limited

so as to keep the resulting encodes NTSC or PAL composite signals within the predefined limits. This should be done in such a way that the composite signal is maintained within the pre-defined limits while still insuring that any processing of the color video signals is carried through with a minimum of change to the luminance, hue of saturation of the resulting composite signal (column 1, line 54-62).

 (4) Regarding claim 4:

Shu disclose all the subject matter as described in claim 1 above. Furthermore, Shu disclose a lookup table adapted to store the output values in consideration of the symmetry (column 7, line 45-51) for a plurality of input values (column 8, line 36), (the examiner interpreted that the plurality of pixels have a plurality of input values).

However, Shu does not disclose the sub-lookup table for obtaining an address as recited in claim 4.

Kaye et al. teaches a processor for color video signals, where using a lookup table to obtain an address (column 5, line 55-59).

One of ordinary skill in the art would have clearly recognized the lookup table for obtaining an address (column 5, line 51-62). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of Kaye et al., where using a lookup table for obtaining an address, in the system of Shu, because in such feature the signals (digital luminance, R-Y and B-Y) are limited so as to keep the resulting encodes NTSC or PAL composite signals within the predefined limits. This should be done in such a way that the composite signal is maintained within the pre-

defined limits while still insuring that any processing of the color video signals is carried through with a minimum of change to the luminance, hue of saturation of the resulting composite signal (column 1, line 54-62).

4.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shu and Kaye et al. as applied to claim 4 above, and further in view of Metcalfe (US 5,809,181).

Shu and Kaye et al. disclose the entire subject as described in claim 4 above.

However, Shu and Kaye et al. do not disclose the lookup table, where the specific existence condition includes a color space as recited in claim 5.

Metcalfe teaches a color conversion apparatus, where the color conversion is loaded with appropriate output color space primary color lookup table (column 6, line 11-13).

One of ordinary skill in the art would have clearly recognized the lookup table, where the specific condition includes a color space (column 6, line 9-16). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine the system Metcalfe, where the lookup table includes a color space, in the system of Shu, because such feature minimize the storage requirements. For example, assuming that each primary color has 256 (8-bits) possible levels of input, a lookup table for every combination of R, G, and B would require 16 Mbytes (256x256x256) for each of the CMY and K pass. A large lookup table can be simulated by interpolating between eight points forming a cube around the R, G, B position derived from the non-uniform color space conversion interval (column 6, line 22-28).

5.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shu,

Kaye et al., and Metcalfe as applied to claims 4 and 5 above, and further in view of

Suzuki (US 6,650,336).

Shu, Kaye et al., and Metcalfe disclose all the subject matter as described in

claims 4 and 5 above.

However, Shu, Kaye et al., and Metcalfe do not disclose the lookup table, where

the output value includes saturation in color space determined in advance as recited in

claim 6.

Suzuki teaches a color conversion device and method capable of improving color

reproduction, where the output value includes saturation in color space is determined

based on three-dimensional lookup table (column 3, line 34-40).

One of ordinary skill in the art would have clearly recognized the lookup table,

where the output value includes saturation in color space determined in advance

(column 3, line 30-40). Therefore it would have been obvious to one of ordinary skill in

the art at the time of invention to combine the system of Suzuki, where the output value

includes saturation value in color space, in the system of Shu, because such feature

can provide a color conversion device determining the saturation level of input image

data which is in term referred to change an interpolation method to another to improve

color reproduction (column 3, line 50-53).

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ji et al. (US PGPUB 2002/0172203) disclose a fast IP route lookup with 16/k and 16/kc compressed data structures.

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
05/07/2007.

SHUWANG LIU
SUPERVISORY PATENT EXAMINER